We claim:-

1. A process for the production of flexographic printing plates by thermal development, in which the starting material used is a photopolymerizable flexographic printing element which comprises, arranged one on top of the other, at least

   - a dimensionally stable substrate,

   - at least one photopolymerizable relief-forming layer, at least comprising an elastomeric binder, ethylenically unsaturated monomers, plasticizer and photoinitiator,

   and the process comprises at least the following steps:

   (a) imagewise exposure of the photopolymerizable relief-forming layer to actinic radiation,

   (b) heating of the exposed flexographic printing element to a temperature of from 40 to 200°C,

   (c) removal of the softened, unpolymerized parts of the relief-forming layer with formation of a printing relief,

   wherein the elastomeric binder is at least one styrene/butadiene block copolymer having a molecular weight M_w of from 80 000 to 250 000 g/mol and a styrene content of from 15 to 35% by weight, based on the binder, the proportion of butadiene present in 1,2-linked form being at least 15% by weight, based on the binder, and the amount of the styrene/butadiene block copolymer is from 30 to 50% by weight and that of the plasticizer is from 25 to 50% by weight, based in each case on the sum of all components of the relief-forming layer.

2. A process according to claim 1, wherein the amount of the plasticizer is from 30 to 45% by weight and that of the styrene/butadiene block copolymer is from 35 to 50% by weight, based in each case on the sum of all components of the relief-forming layer.

3. A process according to claim 1 or 2, wherein the proportion of butadiene which is present in 1,2-linked form in the polymer is at least 20% by weight, based on the binder.

4. A process according to any of claims 1 to 3, wherein the plasticizer is a mixture of plasticizers which comprises at least one polybutadiene oil.

5. A process according to claim 4, wherein the plasticizer mixture furthermore comprises at least one mineral oil.

6. A process according to claim 4 or 5, wherein at least 40% by weight of the butadiene units in the polybutadiene oil are incorporated in 1,2-linked form.

7. A process according to either of claims 1 and 6, wherein the relief-forming layer additionally comprises up to 20% by weight of at least one secondary binder.

8. A process according to any of claims 1 to 7, wherein the imagewise exposure (a) is carried out by positioning a mask on the flexographic printing element and effecting exposure to light through the positioned mask.

9. A process according to any of claims 1 to 7, wherein the flexographic printing element additionally has a digitally imageable layer and step (a) is carried out by recording imagewise on the digitally imageable layer and effecting exposure to light through the mask thus created in situ.

10. A process according to claim 9, wherein the digitally imageable mask is a mask selected from the group consisting of IR-ablative masks, inkjet masks and thermographic masks.

11. A process according to claim 9 or 10, wherein the digitally imageable layer or the residues thereof is or are removed from the relief-forming layer before process step (b).

12. A process according to claim 11, wherein the digitally imageable layer is water-soluble, and the digitally imageable layer or the residues thereof is or are removed with water or a predominantly aqueous solvent before step (b).

13. A process according to any of claims 1 to 12, wherein the removal of the softened, unpolymerized parts is carried out by bringing the flexographic printing element into contact with an absorbent material.

14. A process according to any of claims 1 to 12, wherein the removal of the softened, unpolymerized parts is carried out by processing the flexographic printing element with hot air or liquid streams under pressure.

15. A process according to any of claims 1 to 14, wherein the temperature in step (b) is from 60 to 160°C.